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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,169	11/17/2003	Inn-Sung Lee	21C-0095	4082
23413	7590	01/23/2008	EXAMINER	
CANTOR COLBURN, LLP			HOLTON, STEVEN E	
20 Church Street			ART UNIT	
22nd Floor			PAPER NUMBER	
Hartford, CT 06103			2629	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/715,169	<b>Applicant(s)</b> LEE ET AL.	
	<b>Examiner</b> Steven E. Holton	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 9-13, 19 and 21-23 is/are rejected.
- 7) ☒ Claim(s) 4-8, 14-18 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This Office Action is made in response to applicant's amendment filed on 10/15/07. Claims 1-23 are currently pending in the application. An action follows below:

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 9-13, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (USPN: 6259615) in view of Williams (USPN: 6127785).

Regarding claim 1, Lin discloses a lamp driving circuit that has a power supply (Fig. 2, elements 12, 30, 40, 50, 80, and, TX1) for supplying electrical power to a lamp (Fig. 2, element CCFL) and a feedback part (Fig. 2, element 60) that detects current flowing through the lamp (Fig. 2, element 42) and prevents power from being supplied to the lamp when an abnormal situation occurs (col. 5, lines 32-34; col. 8, lines 7-46; and col. 8, line 47 – col. 9, line 15). In this case Lin cuts off the power when an over-voltage situation occurs.

However, Lin does not disclose providing multiple lamps in parallel, but only focuses on a single lamp system.

Williams discloses a lamp power supply system with a feedback signal using a parallel lamp arrangement (Fig. 4B, elements 15A and 15B).

At the time of invention it would have been obvious to one of ordinary skill in the art that the single lamp of Lin could be altered to utilize multiple lamps in parallel. It would be a matter of design choice depending on the design of the entire lighting system such as the use of one or parallel lamps as disclosed by Williams (Fig. 3 and Fig. 4B). The feedback signal provided by Williams (Fig. 4B, element FB) of the sum of the currents flowing through Lamp A and Lamp B could be supplied as the feedback signal used by the system of Lin. The feedback signal would then be used by the system of Lin for disconnecting the power to the inverter system so that all of the lamps are disconnected from the power supply during a period of abnormal voltage such as an overvoltage. Thus, the combination of the teachings of Lin and Williams could be used to produce the device described in claim 1.

Regarding claim 2, Williams discloses the feedback signal is made of the sum of the currents flowing through each of the lamps (col. 9, lines 1-7).

Regarding claim 3, Lin discloses a power supply system with a first switching part that opens the current path which the direct current is provided from an external source (Fig. 2, element 80 is the switching part; element 12 provides the direct current from the battery power source). Lin provides a transforming portion to transform the direct current into an alternating current (Fig. 2, elements 30, 40, 50, and 80) and a switching control part that receives feedback for controlling the switching (Fig. 2, elements 42 and 62 provide feedback to elements 22 and 38). Lin does not expressly disclose a second boosting circuit for transforming a low level AC signal to a high level AC signal. The Examiner notes that providing a boosting circuit to increase the voltage level of a signal

is well-known in the art and would be a matter of design choice for one skilled in the art. Depending on the design of the circuit a single DC/AC conversion circuit can be used, or a secondary boosting circuit could be applied to further increase the level of the AC signal used to drive the lamp. The need of a second boosting circuit depends on the design and output ability of the first DC/AC converting circuit.

Regarding claim 9, the system of Lin detects over-current situations (col. 8, lines 7-46) an over current situation occurs when a lamp is an open connection and allows too much current to flow through the lamp.

Regarding claim 10, the system of Lin detects an over-current situation in the lamp and inhibits the current flowing in the lamp based on the abnormal condition.

Regarding claim 11, the Examiner notes that this claim is similar to claim 1 except that it further provides a receiving container for housing the lamp and lamp driving portion. The Examiner notes that it would be obvious to one skilled in the art to provide some sort of container assembly for housing the lamp and controlling circuits. The system is provided to go with a display panel unit with a display, lamp and control circuits and it would be a matter of design choice for one skilled in the art to provide an exterior housing to hold the lamp and control circuitry or to provide separate housings for the lamp and control circuitry. The arguments provided for claim 1 can be applied to the other elements of claim 11.

Regarding claim 12, Williams discloses the feedback signal is made of the sum of the currents flowing through each of the lamps (col. 9, lines 1-7).

Regarding claim 13, the arguments provided for claim 3 can similar be applied to claim 13.

Regarding claim 19, the Examiner takes Official Notice that it is well-known in the art to provide circuits on printed circuit boards and it would be obvious to one skilled in the art that the circuits described by Lin could be formed on a printed circuit board.

Regarding claim 21, Lin discloses using a CCFL lamp (Fig. 2, element CCFL) and the Examiner notes that the other types of lamps are well-known in the art and it would be a matter of design choice for selecting one of the types of lamps depending on the type of lamp system being designed.

Regarding claim 22, the Examiner notes that this claim is similar to claim 1 except that it provides a liquid crystal display panel with the feedback system. Lin discloses a liquid crystal display panel (Fig. 2, element 20) that is combined with the lamp and feedback system.

Regarding claim 23, the Examiner takes Official Notice that it is well-known in the art to provide circuits on printed circuit boards and it would be obvious to one skilled in the art that the circuits described by Lin could be formed on a printed circuit board.

***Allowable Subject Matter***

3. Claims 4-8, 14-18, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Further, the above objections to minor informalities would need to be addressed to place some of the claims into allowable form.

Regarding claims 4 and 14, the closest prior art describes various feedback circuits but fail to fully disclose the circuit described in claims 4 and 14.

Regarding claims 5 and 15, the closest prior art provides a single switch for removing the current flowing from the direct current input to the transforming and inverting portions. The prior art fails to disclose "a second switching part that connects or opens a current path through which a direct current provided from the first switching part device flows toward the inverting part" and a second switching control part for controlling the second switching part based on received feedback signals.

Regarding claims 6 and 16, the closest prior art fails to disclose "an AND operation section that receives currents that flow each of the lamps, so that the AND operation section provides the power supplying part with the feedback signal when one of the currents is out of a predetermined range" and an adding section that sums the currents that flow each of the lamps to provide the power supplying part".

Regarding claim 20, the closest prior art fails to disclose a first container with a first sidewall and a second container to be held inside the first container so that the printed circuit board is between the first and second sidewalls when connected to the lamps.

### ***Response to Arguments***

4. Applicant's arguments, see pages 8 and 9, filed 10/15/2007, with respect to the rejection(s) of claim(s) 1, 2, 9-12, 21, and 22 under 35 USC 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of a combination of previously presented prior art.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571) 272-7903. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven E. Holton  
Division 2629  
January 17, 2008

AMR A. AWAD  
SUPERVISORY PATENT EXAMINER  
